Photoelectric effect

Photoelectric effect occurs when a metallic plate is irradiated by electromagnetic radiation. If you irradiate a metallic plate that is part of an electrical circuit, you discover that a voltage is generated. This voltage occurs because electrons are hit by photons in the electromagnetic radiation, and thus become excited and move across the barrier between the plates. Historically, it has been believed that the intensity of electromagnetic radiation depends on the amplitude of the electric field, but if you measure the voltage that occurs across the plates, you see that the voltage varies with the frequency of the applied light, not the amplitude. And if the frequency is too low, no voltage will occur at all. Einstein explained this phenomenon in his time precisely by showing that electromagnetic radiation consists of particles - photons - and that these interact one by one with the electrons in the plate. Higher intensity of light corresponds to more photons per time, while higher frequency corresponds to each photon having higher energy. He received the Nobel Prize for his discovery in 1905.